

Evaluation of Toxic Metals in Water Hyacinth (*Eichhornia crassipes*) from Valsequillo Reservoir, Puebla, Central Mexico

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Abstract : Valsequillo reservoir located in Puebla City, Central Mexico receives water from the Atoyac River (Northwest) and from Alseseca River in the north. It has been the receptacle of municipal and industrial wastes for the past few decades affecting the water quality lethally. As a result, there is an outburst of water hyacinths (*Eichhornia crassipes*) in the reservoir occupying around 50 % of the total area. Therefore, the aim of the present work was to assess the concentration levels of toxic metals (Co, Zn, Ni, Cu and As) in the water hyacinths and the ambient waters during the dry season. Fourteen water samples and three water hyacinth samples were procured from the Valsequillo reservoir. The collected samples of water hyacinth (roots, rhizome, stems and leaves) were analyzed using an Inductively coupled plasma mass spectrometry (ICP-MS) Ultramass 700 (Varian Inc.) to determine the metal levels. Results showed that water hyacinth presented an exhaustion in metal capture from the inlet to outlet of the reservoir. The maximum bioaccumulation factors (BF) of Co, Zn, Ni, Cu and As were 5000, 47474, 4929, 17090 and 74000 respectively. On the other hand, the maximum Translocation Factor (TF) of 0.85 was observed in Zn, whilst Co presented the minimum TF of 0.059. Thus, the results presented the fact that water hyacinth in Valsequillo reservoir proves to be an important environmental utility for efficiently accumulating and translocating heavy metals from the ambient waters to its organelles (stems and leaves).

Keywords : bioaccumulation factor, toxic metals, translocation factor, water hyacinth

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